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Reference 28

October 18, 1984

Ms. Anne Koven
Upper Ottawa Street Landfill Office
20 Jackson St. W., Suite 412
Hamilton, Ontario
L8P 1L2

URBAN MUNICIPAL
APR 30 1987
GOVERNMENT DOCUMENTS

Dear Anne:

RE: Mann Testing File #841547
Analysis of 4 Leachate Samples

Four samples of leachate were secured from the North side of the Upper Ottawa Street Landfill on June 5, 1984. Three of the samples were collected as the leachate ran down the side of the Landfill prior to entering Redhill Creek. The fourth sample was obtained from a milky pool very near the creek.

The samples were numbered 1 to 4 with a suffix A and B for duplicate samples. It is difficult to accurately describe the exact location of each sample as they were all taken along Redhill Creek and at locations where seepage from the Landfill was greatest. One sample was taken farther upstream of the Landfill where it is suspected that some dumping took place very early in the life of the landfill.

Sample locations are individually described as one walks from the creek at the railway to the farthest point upstream of the Landfill.

Sample No.	Location
4A, 4B	- milky pool, approximately 75 yards upstream of the train bridge
1A, 1B	- seepage from the side of the Landfill about 1/3 of the way along Redhill Creek

Members: Association of Official Racing Chemists, American Chemical Society, Canadian Society of Forensic Science, Chemical Institute of Canada, American Society for Testing and Materials, Canadian Federation of Independent Business, Better Business Bureau, Association of the Chemical Profession of Ontario, Association of Professional Engineers of the Province of Ontario, Canadian Association of Fire Chiefs, American Industrial Hygiene Association, Air Pollution Control Association, Canadian Society of Safety Engineering, International Society for Respiratory Protection.

Sample No.	Location
2A, 2B	- seepage from the side of the Landfill about 2/3 of the way along Redhill Creek
3A, 3B	- seepage into Redhill Creek just West of the Landfill (slightly upstream of the Landfill)

These samples were not part of the continuing monitoring program but were additional. Analytical methods used to detect and measure the organic contaminants were identical to those reported in Monitoring Report No. 2 dated October 17, 1984.

Analytical results are best described as being similar to those found in the collection Manhole sample reported earlier. High concentrations of tetrahydrofuran and 1,4-dioxane were found in the volatile fraction. Phthalates, PAH's and phenols were found in relatively high amounts in the extractable fractions.

Levels of targetted organic compounds are listed in Tables I to III. Table I lists the results of the volatile compounds analysed. Table II refers to the heavier organic screen, ie: the acid and base/neutral extractables. Table III is a special scan for chlorinated hydrocarbons using the very sensitive electron capture gas chromatographic detector. Traces of these compounds were detected but could not be confirmed by GC/Mass Spectrometry. In all likelihood, the system is measuring interferences.

If you have any questions regarding the results, please call me.

Yours truly,

John W. Martin, P.Eng.
President

JWM/jh,
Att.

TABLE I

CONCENTRATION OF VOLATILE ORGANICS IN UPPER OTTAWA STREET LANDFILL SITE SAMPLES (ppb)

	COMPOUND	1-B	2-B	3-A	4-A	MDL
1	1,1-Dichloroethylene	-	-	-	-	1
2	Carbon Disulfide	-	-	-	-	-
3	Acetone	7.14	3.09	13.01	31.93	2
4	Tetrahydrofuran	342.68	18.49	1042.88	329.89	1
5	1,1-Dichloroethane	-	-	-	-	1
6	1,1,1-Trichloroethane	-	-	-	-	1
7	Ethyl Methyl Ketone	-	-	-	-	1
8	Benzene	2.75	1.07	1.93	9.07	1
9	Trichloroethylene	-	-	-	1.29	1
10	Chloroform	BMDL	BMDL	BMDL	BMDL	2
11	Tetrachloroethylene	-	-	-	1.0	1
12	Toluene	BMDL	BMDL	BMDL	12.14	2
13	Ethyl Benzene	-	-	1.11	14.15	1
14	p-Xylene	8.70	-	12.69	17.41	1
15	m-Xylene	-	-	1.96	15.94	1
16	o-Xylene	54.95	BMDL	BMDL	16.64	1
17	Chlorobenzene	BMDL	BMDL	BMDL	BMDL	1
18	Styrene	-	-	-	BMDL	1
19	1,2,4-Trimethyl Benzene	-	-	3.00	18.19	1
20	N-Methyl-N-Nitrosomethanamine	-	-	-	-	10
21	1,3-Dichlorobenzene	9.95	-	-	MDL	1
22	Bromoform	-	-	-	-	1
23	1,4-Dichlorobenzene	12.07	-	-	-	1
24	1,2-Dichlorobenzene	2.33	-	-	-	1
25	1,2,3,4-Tetramethylbenzene	19.25	2.61	2.07	4.95	1
26	Aniline	-	-	-	-	-
27	1,4-Dioxane	1950.74	103.43	2610.29	4925.64	80
28	Diethyl ether	3.80	BMDL	8.28	7.90	2
29	Dichloromethane	BMDL	BMDL	19.71	BMDL	5

BMDL = Below Minimum Detection Limit

TABLE II

UPPER OTTAWA PRIORITY POLLUTANT (ppb)

	ACIDIC COMPOUNDS	#1	#2	#3	#4	MDL
1	Phenol	-	-	-	104.8	1.5
2	2-Chlorophenol	-	-	-	-	-
3	2,4-Dimethyl phenol	BMDL	BMDL	-	36.4	2.0
4	p-Chloro-m-cresol	-	-	-	-	2.0
5	2,4-Dichlorophenol	-	-	-	-	2.5
6	2,4,6-Trichlorophenol	-	-	-	-	3.0
7	2-Nitrophenol	-	-	-	-	2.0
8	2,4-Dinitrophenol	-	-	-	-	5.0
9	4,6-Dinitro-o-cresol	-	-	-	-	4.0
10	Pentachlorophenol	-	-	-	-	3.0
11	4-Nitrophenol	-	-	-	-	2.1
12	2,4-D	-	-	-	-	2.5
13	Silvex	-	-	-	-	2.4
14	o-Cresol	-	-	-	2.3	2.1
15	m-Cresol	-	-	-	6.8	2.3
16	p-Cresol	-	-	-	-	3.0
17	2,4,5-Trichlorophenol	-	-	-	-	2.0
18	2,4,5-T	-	-	-	-	2.5

	BASE/NEUTRAL COMPOUNDS	#1	#2	#3	#4	MDL
19	Bis(2-Chloro Ethyl)Ether	-	-	-	-	1.0
20	1,4-Dichlorobenzene	0.4	0.4	BMDL	BMDL	0.4
21	1,3-Dichlorobenzene	0.9	0.4	-	BMDL	0.4
22	bis(2-Chloroisopropyl)ether	-	-	-	-	1.0
23	1,2-Dichlorobenzene	BMDL	-	-	BMDL	0.4
24	Nitrobenzene	-	-	-	-	0.5
25	N-Nitrosodi-n-propylamine	-	-	-	-	0.5
26	Hexachloroethane	-	-	-	-	1.0
27	Isophorone	5.5	-	BMDL	-	0.4
28	bis(2-Chloroethoxy)methane	-	-	-	-	0.4
29	Naphthalene	BMDL	BMDL	BMDL	28.5	0.4
30	1,2,4-Trichlorobenzene	-	-	-	-	1.3
31	Hexachlorobutadiene	-	-	-	-	0.5
32	Hexachlorocyclopentadiene	-	-	-	-	3.0
33	2-Chloronaphthalene	-	-	-	BMDL	0.8
34	2,6-Dinitrotoluene	-	-	-	-	2.0
35	Dimethyl phthalate	-	-	-	-	1.0
36	Acenaphthylene	-	-	-	-	0.5
37	Acenaphthene	1.9	-	0.5	2.5	0.4
38	2,4-Dinitrotoluene	-	-	-	-	1.5
39	Diethyl phthalate	-	-	-	-	5.0
40	9H Fluorene	5.3	-	1.6	2.1	0.4
41	4-Chlorophenyl phenyl ether	-	-	-	-	1.0

BMDL = Below Minimum Detection Limit

TABLE II Cont'd.

BASE/NEUTRAL COMPOUNDS	#1	#2	#3	#4	MDL
42 N-Nitroso-Diphenylamine	-	-	-	-	0.4
43 1,2-Diphenyl Hydrazine	-	-	-	-	0.6
44 4-Bromophenyl phenyl ether	-	-	-	-	0.5
45 Hexachlorobenzene	-	-	-	-	1.2
46 Phenanthrene	5.5	BMDL	0.8	2.9	0.3
47 Anthracene	12.8	-	-	3.9	0.3
48 Di-n-butyl phthalate	10.28	5.2	3.9	23.4	0.4
49 Fluoranthene	1.8	BMDL	BMDL	BMDL	0.6
50 Benzidene	-	-	-	-	10.0
51 Pyrene	1.9	BMDL	BMDL	BMDL	0.5
52 Butylbenzyl phthalate	-	6.7	6.1	8.1	0.8
53 Chrysene	-	-	-	-	0.4
54 Benzo(a)anthracene	-	-	-	-	0.5
55 3,3-Dichlorobenzidene	-	-	-	-	2.0
56 Bis(2-ethylhexyl)phthalate	146.8	201.0	240.3	147.2	0.9
57 Di-n-octyl phthalate	10.8	-	-	12.73	1.5
58 Benzo(a)pyrene	-	-	-	-	0.3
59 Benzo(k)fluoranthene	-	-	-	-	0.4
60 Benzo(b)fluoranthene	-	-	-	-	0.6
61 Dibenzo (a,h) anthracene	-	-	-	-	4.0
62 Benzo(g,h,i)perylene	-	-	-	-	2.0
63 Indeno(1,2,3-CD)pyrene	-	-	-	-	1.3
64 Coronene	-	-	-	-	2.5
65 Perylene	-	-	-	-	2.5

ADDITIONAL COMPOUNDS	#1	#2	#3	#4	MDL
66 4-Methyl Pyridine	-	-	-	-	0.8
67 Benzothiophene	-	-	-	-	0.4
68 Benzothiazole	BMDL	-	-	-	0.8
69 Isoquinoline	-	-	-	2.5	0.5
70 1-Methyl Naphthalene	BMDL	BMDL	BMDL	3.5	0.5
71 1,2-Dimethyl Naphthalene	BMDL	-	BMDL	6.2	0.6
72 Dibenzofuran	-	-	-	-	0.3
73 2,3,5-Trimethyl Naphthalene	-	-	-	-	0.5
74 2-Methyl Anthracene	BMDL	-	BMDL	1.4	0.8

BMDL = Below Minimum Detection Limit

TABLE III

UPPER OTTAWA PRIORITY POLLUTANTS
PESTICIDE SCAN BY ELECTRON CAPTURE GAS CHROMATOGRAPHY

	PESTICIDE COMPOUNDS	#1	#2	#3	#4	MDL
1	Alpha BHC	-	-	-	-	100
2	Gamma BHC	-	-	BMDL	-	100
3	Beta BHC	-	-	-	-	100
4	Delta BHC	-	-	-	-	100
5	Fluchloralin	-	-	-	-	100
6	Heptachlor	-	-	BMDL	-	100
7	Aldrin	-	-	-	BMDL	100
8	Heptachlor Epoxide	-	-	-	-	100
9	Oxychlordane	-	-	-	-	100
10	Alpha Endosulfan	-	-	-	-	100
11	4,4'-DDE	-	-	BMDL	-	100
12	Dieldrin	-	-	-	-	100
13	Endrin	-	-	-	-	100
14	Beta Endosulfan	-	-	-	-	100
15	4,4'-DDD	-	-	-	-	100
16	Endrin Aldehyde	-	-	-	-	100
17	Endosulfan Sulfate	-	-	-	-	100
18	4,4'-DDT	-	-	-	-	100
19	Mirex	-	-	-	-	100
20	Total PCB's	-	-	-	-	500

BMDL = Below Minimum Detection Limit

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